

***Angeldiazia weigendii* (Asteraceae, Senecioneae), a new genus and species from northern Peru**

***Angeldiazia weigendii* (Asteraceae, Senecioneae), un género y especie nuevo del norte del Perú**

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Abstract

Angeldiazia weigendii, a new genus and species from the Department of Lambayeque, Peru, is described and illustrated with photographs. It is characterized by its annual habit, dichotomously branched delicate climbing stems; conspicuously pinnatisect leaves; solitary disciform capitula, peduncles 5-10 cm long; involucre lacking calyculi; 12-16 florets with yellow corollas.

Key words: Asteraceae, Senecioneae, *Angeldiazia weigendii*, gen. & sp. nov., Lambayeque, Peru.

Resumen

Angeldiazia weigendii, un nuevo género y especie del Departamento de Lambayeque, Perú, es descrito e ilustrado con fotografías. Se caracteriza por su hábito anual, tallos trepadores, delicados, dicotómico ramificaciones; hojas notoriamente pinnatisectas; capítulo solitario, disciformes, pedúnculo 5-10 cm largo; involucro sin cálculo; 12-16 flósculos con corolas amarillas.

Palabras clave: Asteraceae, Senecioneae, *Angeldiazia weigendii*, gen. y sp. nov., Lambayeque, Perú.

Introduction

Worldwide, the Senecioneae contains no fewer than 150 genera and 3000 species (Nordenstam, 2007; Nordenstam *et al.*, 2009). It is an important tribe in South America and is represented in Peru by 20 genera and more than 350 species. The number of newly recognized segregates previously classified in *Senecio* L. has led to additional genera being recognized, for example, the newly circumscribed *Lomanthus* B. Nord. & Pelser (Nordenstam *et al.*, 2009). After reviewing Andean and extra-Andean Senecioneae in connection with prior studies in the tribe (Dillon & Sagástegui, 1988, 1996, 1999; Vision & Dillon, 1996), we are convinced that the morphological characters exhibited by this taxon do not correspond to any of the recognized genera within the Senecioneae. *Angeldiazia* is the second endemic genus of Senecioneae recorded for Peru after *Caxamarca* M.O. Dillon & Sagást. (Dillon & Sagástegui, 1999).

Angeldiazia M. O. Dillon & Zapata, gen. nov.

TYPE: *Angeldiazia weigendii* M.O. Dillon & Zapata, sp. nov. Figs 1-2.

Genus novum, Erechites affine, a quo foliis pinnatisectis conspicuae, corollis lutei; caulibus serpentibus tenuibus differt.

Climbing, delicate annuals to 1.2 m tall, taprooted, apically dichotomously branched, internodes 5-10 cm long. Leaves alternate, sessile, the blades lanceolate in outline, the margins conspicuously pinnatisect, the bases clasping. Capitulescences weakly cymose, 3-4-capitula. Capitula disciform, calyculus lacking; involucre pyriformis; phyllaries uniseriate, connivent; corollas dimorphic, yellow. Achenes fusiform; pappus of fragile bristles.



Fig. 1. *Angeldiazia weigendii* M.O. Dillon & Zapata. Holotype image of Zapata 51 (F).

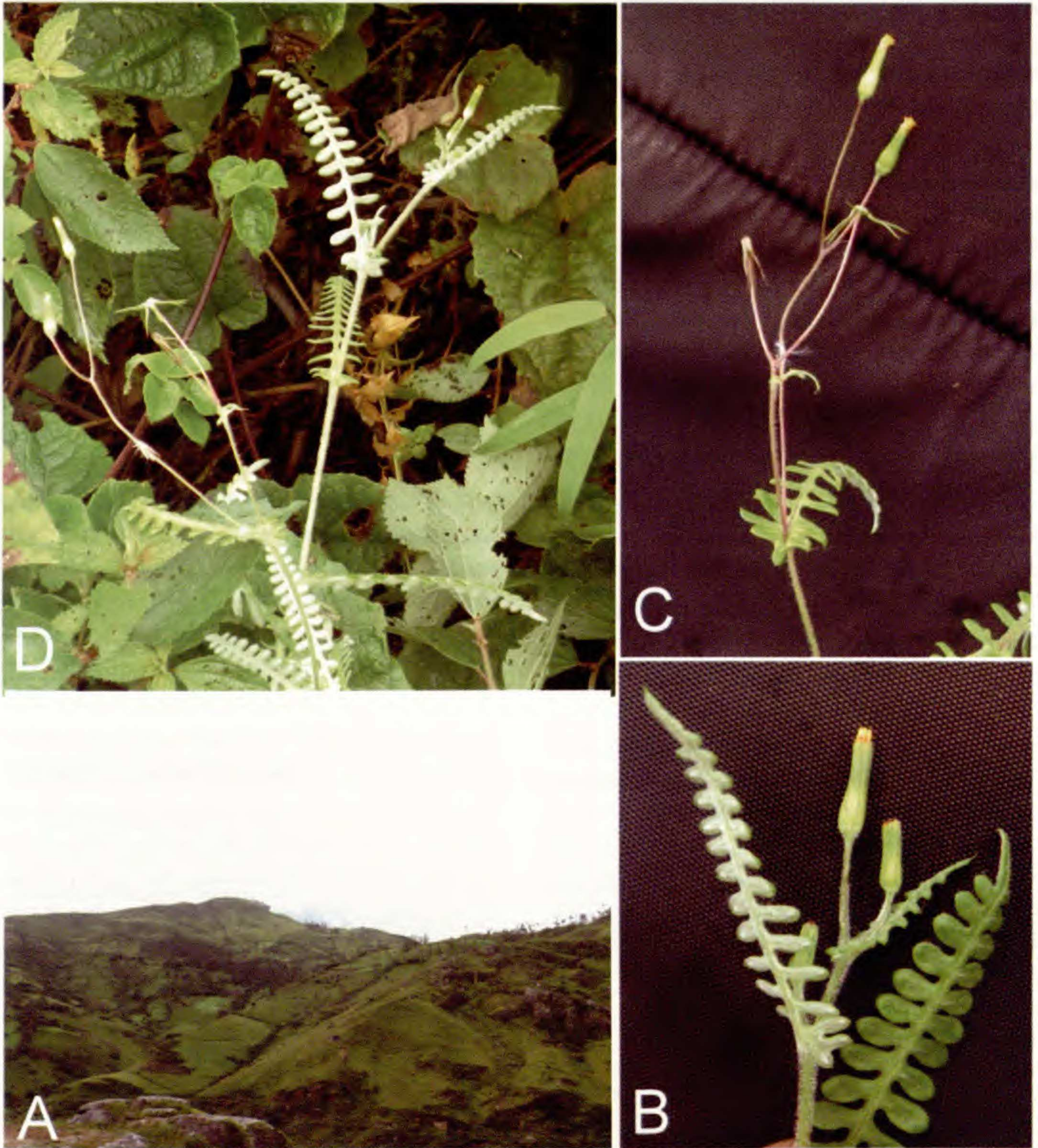


Fig. 2. A. Habitat of type locality of *Angeldiazia weigendii* M.O. Dillon & Zapata in valley of the Río La Leche, between Moyan and Incahuasi; B. Close-up of capitula and upper leaves, abaxial (left) and adaxial (right); C. Capitulescence a weak cyme and clasping upper leaf base; D. Habit amongst seasonal vegetation. (Photographs by M. Zapata, 1 May 2010).

Morphologically, *Angeldiazia* does not fit into any described member of the Senecioneae; the new taxon is unique in its combination of characters. One genus in the Neotropics to share any degree of similarity with *Angeldiazia* is *Erechtites* Raf., represented by annual herbs with serrate

to pinnatifid-lobed leaves, the lobes irregular and acute, and disciform capitula with yellow to white corollas (Belcher, 1956). However, *Erechtites* varies in several fundamental characters, such as, its erect habit, irregularly dentate leaves, and calyculate involucre.

Solitary, capitula lacking a calyculus suggest *Emilia* Cass.; however, *Emilia* are normally erect herbs, often with basal leaves with lyrate margins, discoid capitula, corollas isomorphic, typically pink to red, and distributions centered in the Old World tropics, and greatest diversity in tropical Africa & Madagascar (Garabedian, 1924; Nicolson, 1980). In the New World, *Emilia* has been recorded from the Caribbean, northwestern South America, and Brazil; and within the last 10 years, the pantropical weed, *Emilia sonchifolia* (L.) DC., has been recorded in the Peruvian Departments of Loreto and Ucayali (Tropicos, 2010). Other than its small capitula with ecalyculate involucre, there is little to associate this new taxon with *Emilia*. Molecular studies are planned to establish the phylogenetic position of this new genus.

Etymology: It is our pleasure to dedicate this new and unusual plant from Lambayeque to Dr. Angel Diaz Celis, noted Peruvian botanist and past rector of Universidad Nacional Pedro Ruiz Gallo. It was his collection of this species (*Diaz et al.* 4777) which we first examined in 2005 and determined it to be a new entity. That collection lacked flowering material and the label was without detailed locality information. For those reasons, we waited until additional collections came to light before describing this new, unusual taxon.

Angeldiazia weigendii M. O. Dillon & Zapata, sp. nov., Figs. 1-2.

TYPE: PERU, **Dept. Lambayeque:** Prov. Ferreñafe. Valle del Río La Leche, entre Moyan e Incahuasi, cerca del desvío a Uyurpampa, ca. 7 km ENE de Moyan & ca. 8.5 km WSW de Incahuasi, ca. 2000 m, 1 Mayo 2010. Hierba anual, trepadora, de 1.2 m, rara, dentro de vegetación arbustiva secundaria, suelo arenoso y húmedo; corolas amarillas. *Mario Zapata Cruz 51* (F#2294581, holotype; HAO, isotype).

Ex speciebus generum affinium, foliis pinnatisectis conspicuae (12-18 pair), 5-12 cm longis, a specis nobis notis bene distincta; caulibus serpentibus tenuibus, ad 120 cm longis, capitula solitariis in

pedunculis 5-10 cm longis; involucris pyriformis, 13 mm sine calyculis; corollis lutei 6-8 mm longi.

Description: Annual herbs to 1.2 m; taprooted; stems delicate, climbing, branched dichotomously, internodes 5-12 cm long, arachnoid-pubescent. Leaves lanceolate in outline, alternate, sessile, conspicuously pinnatisect, the lamina dissected to the midrib but having the segments confluent; basally lobes clasping the stems, the blades 4-16 cm long, 2-3 cm wide, abaxial surfaces densely arachnoid-pubescent, adaxial surface villous along veins; margins with 10-21 pair of lobes, the lobes ovate or obovate, 5-10 mm long, 3-5 mm wide, apically obtuse to rounded, terminal lobe rounded. Capitulescence terminal, of weak monochasial cymes; peduncles 3-6 cm long, arachnoid-pubescent to villous. Capitula disciform; involucre green, pyriform, ecalyculate or with a single filiform bract, ca. 13 mm long, 4-5 mm wide; phyllaries persistent, 8-13, uniseriate, linear, ca. 13 mm long, ca. 1 mm wide, erect, reflexed in fruit, equal, margins confluent, glabrous to arachnoid-pubescent, apices acute, slightly darkened; receptacles flat to convex, smooth or obscurely foveolate, epaleate; florets dimorphic, 12-16 per capitula; marginal florets pistillate, 7-8 in one series, the corollas filiform, 6-8 mm long, the tube 5-6 mm long, the ligula minute, 1-2 mm long, 0.2-0.4 mm wide, yellow; disc florets hermaphrodite, 6-8, the corollas tubular, 5-6 mm long, the tube 3.5 mm long, the limb dilated, 1.5 mm long, 5-lobed, the lobes lanceolate, ca. 0.5 mm long, yellow; style branches stigmatic in 2 lines, apices truncate or truncate-penicillate, appendages lacking. Achenes fusiform, 2.4 to 3 mm long, 5-ribbed, the ribs densely pubescent with trichomes; pappus white, abundant, 4-6 mm long; pappi bristles fragile.

This new species is a remarkable annual, with delicate climbing stems to over a meter long, and quite distinct from all Neotropical Senecioneae known to us. It is characterized by its conspicuously pinnatisect leaf blades with mostly opposite rounded lobes and densely arachnoid pubescent abaxial surfaces. The small solitary capitula (< 15 mm long, ca. 6 mm wide) are borne in weak cymes with 3-4 capitula on peduncles 5-10 cm long. The

pyriform involucre essentially lack a well-developed calyculus, a character common to *Emilia*; however, the capitula have approximately equal numbers of yellow florets of two types; ca. seven to eight fertile filiform marginal florets and six to eight fertile hermaphroditic disc florets. *Emilia* has isomorphic florets (Garabedian, 1924). As mentioned previously, the small, cylindrical capitula are superficially similar to those in *Erechtites*, however, the involucre in that genus are always strongly calyculate and the marginal florets possess ligulas that are 4-5-dentate at the tip (Belcher, 1956).

Etymology: It is a pleasure to dedicate this species to Dr. Maximilian Weigend, professor at Freie Universität Berlin, Germany and expert in Latin American botany. Since the mid-1990s, Dr. Weigend has been an avid plant collector and explorer in Peru, and he was responsible for making the second collection of this new taxon available for study. He has been influential in developing plant systematics in Peru and testing biogeographic hypotheses within the Andean Cordillera with detailed studies in a number of plant groups, including Grossulariaceae, Loasaceae, and Passifloraceae.

Distribution and ecology: This new species is currently known from three collection localities in different drainage systems, all on the western versant of the cordillera and within 70 kms of each other. The type is from Department of Lambayeque in the upper reaches of the Río La Leche, approximately midway between Moyan and Incahuasi (06°15'29.6"S, 079°23'23.8"W). Directly north of the locality is Cerro Puycate, which reaches an elevation of 2500 m. At this site, the plant grows in sandy soils at approximately 2000 m in cutover cloud forest dominated by shrubs and small secondary trees. It appears to be quite rare and less than a dozen individuals were seen at the type locality. Flowering material has been collected in May which is at the end of the rainy season typically extends from January to April. By July and August, the area receives very little moisture and is devoid of flowering material of this taxon.

Two other collections are recorded from the western versant both north and south of the type locality in the Departments of Cajamarca and Piura. The collection from Caserio Cachil (Diaz *et al.* 5097, PRG) near Miracosta, Cajamarca is the most southern known locality (6°24'15"S, 79°17'04"W) and the highest recorded elevation at 2500 m. This locality should not be confused with Bosque Cachil from further south in Department of Cajamarca (7°24'S, 78°47'W). The collection from near Abra Porculla (Diaz *et al.* 4777, PRG) is the most northern known locality for this taxon (5°50'00"S, 79°30'00"W) and the lowest recorded elevation at below 1900 m.

Additional Material Examined: PERU: **Dept. Cajamarca.** Prov. Chota: Caserio Cachil, 18 May 1981, A. Diaz, L. Vasquez, J. Laos, & G. Delgado 5097 (PRG). **Dept. Lambayeque.** Prov. Ferreñafe: Road from Incahuasi resp. Ullurpampa (syn. Uyurpampa) to Batan Grande, 3 May 2006, M. Weigend, Ch. Schwarzer, G. Brokamp & T. Henning 8597 (F). **Dept. Piura.** Prov. Huancabamba: Porculla, 2 May 1981, A. Diaz, L. Vasquez, J. Laos, & G. Delgado 4777 (PRG).

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